CHARGE NUMBER: 1801
PROGRAM TITLE: Tobacco Processing
PERIOD COVERED: April 1-30, 1980
PROJECT LEADER: F. V. Utsch

I. REORDERING OF MC DET (F. Utsch)

A vibrating conveyor has been installed in D Pilot Plant to develop spraying techniques that can be used in the MC to apply a portion of the reordering moisture at the tower exit. Lifting flights are also being installed in the ball impregnator to improve showering of the particles for further batch reordering rate studies on fresh MC DET. The MC split flow reordering trials at a 12 minute cylinder retention time are scheduled for the week of May 19.

II. EXPANSION TOWER DESIGN STUDIES

A. Gas/Particle Contact (High Speed Photography) (B. Donenfeld)

High speed filming of tobacco particle flow in the 3"x10" plastic rectangular ribbon tower is proceeding. Preliminary designs for a Venturi throat section and for deflectors at the exit portion of the elbow were completed.

B. Expansion Studies - 4" Tower (M. Mobrem)

Several additional air leaks and an electrical control problem have been corrected. DIET expansion trials at inlet gas temperatures up to 850°F are in progress using the short horizontal 4" tower. The first series of test results indicate that the product equilibrated CV/OV curve is fundamentally unchanged from that of the standard two elbow tangential tower. Sieve results indicate that very low breakage is occurring with the horizontal tower installation. Tests studying the effects of tobacco feed OV and impregnation pressure are being run.

A regression analysis was performed on reordered Westab ET CV/OV results. There were indications that product with higher levels of ammonia tend to give lower equilibrated CV levels at the same equilibrated OV. Further studies will address this observation.

III. DIET PATENT APPEAL (R. Z. de la Burde, P. E. Aument)

Demonstration tests were conducted April 15-18 with lawyers representing both PM and Airco in attendance. It was clearly shown on both the Phase II and the Phase III systems that degassing of the impregnated filler does not improve the tobacco filling power and that application of positive heating is required to attain permanent expansion. This point was verified both in CV and cigarette compacimetric testing. This evidence will be used in the appeal trial scheduled to begin on June 25.

IV. CARBAMATE POWDER ET (F. Utsch)

The bulker, feeder and conveyors for the 8" tower carbamate ET prototype system have been installed. Wiring of the electrical controls is in progress.

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V. NEW TOBACCO TREATMENTS

A. Freeze-Drying of Tobacco (B. Donenfeld)

Turgorizing levels of up to 250% by weight (DWB) have been achieved by using a large excess of water. Recycling of the excess water to reach a steady-state where no further leaching of solubles occurs is being studied. Bill Carter is examining the frozen turgorized samples to establish the degree of swelling achieved. Freeze-drying using only ambient heat is giving a 1.9% Karl Fischer OV after 18 hours treatment in the Virtis freeze-dryer. Dr. T. Laszlo is assisting in these studies.

B. Crimping of RL for Improved Filling Power (R. Z. de la Burde)

Crimping of base web and sized RL at two different moistures was accomplished with a single filament resistance heating unit; pressure was required to make pronounced crimps. Since the work was done manually, the crimps were approximately 1/4" apart. Crimped samples that were equilibrated and shredded on a laboratory shredder did not show an increase in CV over the control. These dissatisfying results were attributed to the spacing of the crimps being too large compared to the thickness of the shredded RL fibers, the pressure from the two cutting edges edges of the shredder being too severe, and the crimped edges of the RL being excessively brittle. Trials using intermeshing screen wire to accomplish crimping are planned.

C. Dielectric Drying of RL for Improved CV (R. Z. de la Burde, R. O. Ellis)

A memo outlining the heat requirements, capital equipment costs, the advantages and the disadvantages of the proposed process has been released. An economic analysis of the various potential processing modes is scheduled in order to determine how much CV gain would justify the application. An experimental program has been designed to test base web and sized RL as well as tobacco filler at various moistures in the fields of 2415, 315 and 27 MHz (Thermex/ Solidyne Corporation).

D. Improved Tobacco Bale Handling (R. Z. de la Burde)

A preliminary economic analysis on the dielectric treatment for improved bale opening has been completed by TPI. Capital improvements of approximately $670,000 and an annual operating cost of approximately $216,000 - $337,000 was projected.

VI. PATENT SUPPORT ACTIVITIES (R. Z. de la Burde; et al.)

The unresolved technical issues as well as the inventorship on the low pressure - high moisture CO_2 applications have been resolved. Technical assistance was given in preparation for the pre-trial conference on the DIET appeal. A reply to the foreign objections on PM 783 (mist reordering) was prepared.

F. V. Utsch

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